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What Happened to Pandemics?

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Abstract: A pandemic is defined as an epidemic infectious disease that spreads through human and/or animal populations in large regions or the entire world. It is interesting, but at the same time comforting, to note that the effects of recent disease outbreaks that were declared pandemics such as bovine spongiform encephalitis (BSE), avian and porcine influenza or severe acute respiratory syndrome (SARS) turned out to be not as catastrophic as predicted by specialists and public media. As a consequence, stakeholders and some members of the general public are losing confidence in scientific health information. A team of experts has focused on the problem created by the fact that pandemics have been explained to the public primarily by paraclinicians such as virologists, bacteriologists, molecular scientists and pathologists. However, one may get the impression that their true interest in pandemics is often overshadowed by a welcome opportunity to explain the importance of their research and to secure funding for the future. It is felt that emerging potential pandemics should be introduced to the general population by public health specialists in order to regain the trust of the former. These specialists are expected to have a better holistic view of endemic disease processes and should be able to build trust even when information is weak and fragile.

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What Happened to Pandemics?

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Abstract: A pandemic is defined as an epidemic infectious disease that spreads through human and/or animal populations in large regions or the entire world. It is interesting, but at the same time comforting, to note that the effects of recent disease outbreaks that were declared pandemics such as bovine spongiform encephalitis (BSE), avian and porcine influenza or severe acute respiratory syndrome (SARS) turned out to be not as catastrophic as predicted by specialists and public media. As a consequence, stakeholders and some members of the general public are losing confidence in scientific health information. A team of experts has focused on the problem created by the fact that pandemics have been explained to the public primarily by paraprofessionals such as virologists, bacteriologists, molecular scientists and pathologists. However, one may get the impression that their true interest in pandemics is often overshadowed by a welcome opportunity to explain the importance of their research and to secure funding for the future. It is felt that emerging potential pandemics should be introduced to the general population by public health specialists in order to regain the trust of the former. These specialists are expected to have a better holistic view of endemic disease processes and should be able to build trust even when information is weak and fragile.

Key words: epidemic; one health; information; evidence based medicine

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1. Introduction

What happened to pandemics like BSE, avian and porcine influenza and SARS? Their impact on human populations generally has not been as catastrophic as predicted. The catastrophic effects of BSE were limited to the United Kingdom; however, because the endemic was restricted in time and space, it was not a true pandemic. One problem of the assessment of BSE was the overconfidence displayed by some people who extrapolated from existing theories despite weak evidence. Another was belief fuelled by a combination of personal agendas, premature commitment to far-reaching decisions, failure to address uncertainties and a lack of provisions that would allow reconsideration and adjustment of previously made decisions. Finally, there has been insufficient questioning of general scientific logic and implementation of health schemes. How can these pitfalls be solved?

2. Material and Methods

The author belonged to a team of experts looking at potential adverse effects of vaccination against Blue Tongue Virus infection (BTV; Tschuor et al., 2009; Hässig et al., 2009). He was also a member of the expert team

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for the eradication program of Bovine Virus Diarrhoea (BVD) in Switzerland. As a bovine herd health specialist he was asked to look for possible solutions to problems inflicted on farm animals by mobile phone transmission stations (Hässig et al., 2008; 2009; 2012). This paper presents a synopsis of the pitfalls identified and in addition, refers to the larger scale of pandemics. This paper should also give some future perspectives to the role of public health specialist in decision-making.

3. Results and Discussion

In our view, a major problem was that the pandemics were explained to the general public by paraclinicians. These people do excellent and valuable work, but the bottom line is that like all other scientists, they need grants to be able to survive the tremendous pressure to publish. Under these circumstances it is not surprising that an infectious agent is often presented to the larger public to be very dangerous. This is also an ideal venue to publicize previous and ongoing research and justify the need for more public funds. A common tactic is to ask the public the following question: “Well, what do we do when the virus/bacterium mutates?” Here we have to remember that a mutation can occur in any disease-causing agent, but that most mutations are actually lethal for the infectious agent itself, which is then being destroyed. Of course, some mutations can have deleterious effects on the health of human and animal populations. What is often lacking from statements relating to the ‘importance’ of a newly emerging disease-causing agent is the concept of probability and concrete probabilistic models, or information about the way the disease-causing agent is transmitted within a population. Paraclinicians are health providers in a classical sense: Simply put, they prefer to look at an infectious agent in terms of its destruction, and at restoration of health in the population. This concept is based on Koch’s postulates from 1880 and is presented here (Koch, 1982):

- The microorganism must be found in abundance in all organisms suffering from the disease, but should not be found in healthy animals.
- The microorganism must be isolated from a diseased organism and grown in pure culture.
- The cultured microorganism should cause disease when introduced into a healthy organism.
- The microorganism must be re-isolated from the inoculated, diseased experimental host and identified as being identical to the original specific causative agent.

Koch’s postulates are usually fulfilled in individual cases, but not when populations are involved in a disease process. Koch’s postulates were supplemented by the first definition of health by the WHO in 1946 in San Francisco (WHO, 1946):

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

This is a definition of health as a steady state, rather than a process. It is widely used and is still the only definition of health given in Wikipedia. However, if applied strictly in a wider context, nobody would be expected to do dangerous work even if it benefited society as a whole; for example soldiers, police officers or fire fighters. Because health is an ongoing process and constantly in flux, a new definition of health was proclaimed in the Ottawa Charter of 1986 (WHO, 1986):

Health is a resource for social and developmental means, thus the dimensions that affect these factors must be changed to encourage health. Health equity must be reached where individuals must become empowered to control the determinants that affect their health, such that they are able to reach the highest attainable quality of life. Health promotion cannot be achieved by the health sector alone; rather its success will depend on the collaboration of all sectors of government (social, economic,

etc.) as well as independent organizations (media, industry, etc.).

4. Added Value to the One Health Approach

To regain the trust of the general public, health officials must improve the way they communicate with the public. To achieve this goal, solid basic information from paraclinicians is vital, combined with good collaboration among clinicians, paraclinicians and public health specialists. Public health specialists should serve as information specialists in health matters. When people receive convincing and logical evidence-based information, they shall be likely to place trust in what they shall hear from health officials about pandemics.

5. Conclusions

Health professionals form a link between medical specialists such as paraclinicians, and the public. A big challenge will be to build trust in a paradoxical society that has the desire for freedom of choice as well as freedom of risk, when only weak and unstable information is available. In the future „One health“ must strengthen its focus on health information.

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